

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2004-\_\_\_\_\_

NPDES NO. CA0082406

WASTE DISCHARGE REQUIREMENTS  
FOR  
INDIAN VALLEY HEALTH CARE DISTRICT  
GEOTHERMAL SPACE HEATING SYSTEM  
PLUMAS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The Indian Valley Health Care District (hereafter Discharger) submitted a Report of Waste Discharge, dated 19 November 2003, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from a geothermal heating system at the Indian Valley Health Care District Hospital.
2. The Discharger discharges wastewater from a geothermal space heating system into a surface drain which in turn discharges to Wolf Creek, a water of the United States, at a point in Section 2, T26N, R9E, MDB&M (latitude 40° 8' 22" and longitude 120° 55' 50") as shown on Attachment A, which is incorporated herein and made a part of this Order. Wolf Creek is tributary to Indian Creek, a tributary to North Fork Feather River. The site lies within the Crescent Mill Hydrologic Unit No. 518.53 as defined on interagency hydrologic maps prepared by the State Department of Water Resources.
3. The report of waste discharge and past monitoring describe the geothermal discharge as follows:

Average Winter Flow	50 gpm
Maximum Flow	80 gpm
Average Summer Flow	5 gpm
Average Temp. (outfall)	90° to 100° F
pH	8.8
Specific Conductance	1,050 µS/cm
TDS	625 mg/L
Chloride	240 mg/L
Fluoride	4.6 mg/L
Boron	4.8 mg/L

Hot water from the geothermal well, which is housed in a wooden shed to the southeast of the front entrance, enters a heat exchanger and is then discharged to a sub grade 4-inch Schedule 40 PVC pipe which passes under Hot Springs Road and eventually discharges to an open drainage ditch approximately 750 feet to the south. The drainage ditch flows south for approximately 250 feet before entering Wolf Creek. The Discharger uses geothermal heat for space heating only so there is no usage or discharge from mid May to mid September.

4. Flows and temperatures in Wolf Creek as supplied by the U.S. Forest Service, Greenville District are as follows:

<b>Month</b>	<b>Flow (gpm)</b>	<b>Ave. Temp. (°F)</b>
January	25,523	39.2
February	60,380	39.2
March	47,579	44.6
April	60,991	42.8
May	38,090	55.4
June	9,818	64.4
July	4,221	57.2
August	2,814	66.2
September	3,029	60.8
October	4,140	51.8
November	4,827	44.6
December	34,160	39.2

Maximum concentrations of pollutants in receiving water as a result of the discharge are most likely to occur in October and November when usage of geothermal fluid is relatively high and flow in Wolf Creek is low. Flow data for individual days indicates that the minimum flow during the period of discharge between 15 September and 15 May is approximately 2.0 cfs (897.6 gpm).

5. The discharge is currently governed by Order No. 99-019 adopted on 30 April 1999.
6. The U. S. Environmental Protection Agency (USEPA) and the Regional Board have classified this discharge as a major discharge.

**WATER QUALITY CONTROL PLAN, NATIONAL TOXICS RULE, AND  
CALIFORNIA TOXICS RULE**

7. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (SWRCB) and incorporated by reference, such as Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (Resolution No. 68-16). These requirements implement the Basin Plan. The Basin Plans, as amended, designate beneficial uses, establish water quality objectives, and contain implementation plans and policies for waters of the Basins. Pursuant to the California Water Code (CWC) Section 13263(a), waste discharge requirements must implement the Basin Plans.
8. U.S. EPA adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies and procedures for implementation of the NTR and the CTR.
9. Resolution No. 68-16 requires the Regional Board, in regulating discharges of waste, to maintain high quality waters of the State until it is demonstrated that any change in water quality will be consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., water quality constituents in concentrations that exceed water quality objectives). The Regional Board has considered Resolution No. 68-16 and Federal antidegradation regulations at 40 CFR 131.12 and compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

**BENEFICIAL USES**

10. The Basin Plan on page II-2.00 states that: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not identify any beneficial uses specifically for Wolf Creek and its tributaries, but the Basin Plan does identify present and potential beneficial uses for the North Fork Feather River, to which Wolf Creek and Indian Creek are tributary.

The Basin Plan identifies the following beneficial uses for the North Fork of the Feather River: municipal and domestic supply (MUN); hydropower generation (POW); water contact recreation and canoeing and rafting (REC-1); non-contact recreation (REC-2); cold freshwater habitat (COLD); cold water spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD). In addition, SWRCB Resolution No. 88-63 (“Sources of Drinking Water Policy”), incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1. Upon review of the flow conditions, habitat values, and beneficial uses of Wolf Creek and its tributaries, the Regional Board finds that the beneficial uses identified in the Basin Plan for the North Fork Feather River are applicable to Wolf Creek and its tributaries as discussed below. The Basin Plan defines beneficial uses and with respect to disposal of wastewaters states that “...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.”

a. *Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply*

The SWRCB has issued water rights to existing water users along Wolf Creek and its tributaries and the Feather River downstream of the discharge for multiple uses including domestic, agricultural, and industrial service supply. Since the flow in Wolf Creek and its tributaries is greatly reduced in the summer months, these streams likely provide groundwater recharge during periods of low flow. Domestic water supply in the area is generally provided by municipal entities using treated surface water. Although the use of area groundwater as domestic supply is limited, the potential for expanded use exists. In addition to the existing water uses, growth in the area downstream of the discharge is expected to continue, which presents a potential for increased domestic, agricultural, and industrial uses of groundwater and the water in Wolf Creek and its tributaries. The Basin Plan states that “*Water Bodies within the basins that do not have beneficial uses designated in Table II-1 are assigned MUN designations in accordance with the provisions of State Water Board Resolution No. 88-63 which is, by reference, a part of this Basin Plan.*” SWRCB Resolution No. 88-63 provides that “*All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards...*”. The beneficial use of municipal and domestic supply is applicable to Wolf Creek and its tributaries based on Resolution No. 88-63, the Basin Plan tributary rule, and actual uses.

b. *Hydropower Generation, and Navigation*

Although no records of existing hydropower generation and navigation uses were found on Wolf Creek and its tributaries, these uses do exist in the North Fork Feather River to which Wolf Creek and Indian Creek are tributary. The very nature of these uses depends on the

presence of flow from tributary streams and therefore these uses are protected by including them as beneficial uses in streams tributary to the North Fork Feather River. Furthermore, considering the likely future value of electricity generation, it is not unreasonable to expect that new technologies for small hydropower projects may make hydropower generation uses on Wolf Creek or its tributaries desirable.

c. *Water Contact and Noncontact Recreation*

The Regional Board finds that Wolf Creek and its tributaries flow through rural and residential areas and that there is ready public access. Contact and noncontact recreational activities exist and are likely to increase if the population in the area grows. Prior to discharge into Indian Creek and North Fork Feather River, Wolf Creek flows through areas of general public access. North Fork Feather River also offers recreational opportunities.

d. *Cold Freshwater Habitat, Migration of Aquatic Organisms, Spawning, Reproduction, and/or Early Development, and Wildlife Habitat*

Wolf Creek flows to Indian Creek, which is tributary to the North Fork Feather River. Fish species present in Indian Creek, Wolf Creek and their tributaries are consistent with cold water fisheries. There is no potential for anadromous fish migration beyond Lake Oroville and associated beneficial uses, therefore, do not apply to Wolf Creek. The Basin Plan (Table II-1) designates the North Fork Feather River as being a cold freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Wolf Creek and its tributaries. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. The riparian areas along Wolf Creek and its tributaries support wildlife habitat.

e. *Groundwater Recharge, and Freshwater Replenishment*

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. During the summer months the local water table is well below the stream bottom of Wolf Creek as evidenced by drillers logs in the area. During these months it is reasonable to assume that water in Wolf Creek is percolating to the soil layers below and eventually reaching groundwater. There is hydraulic continuity between Wolf Creek and North Fork Feather River throughout the entire year. Wolf Creek and its tributaries, therefore, add to the water quantity and may impact the quality of water flowing down stream to North Fork Feather River.

11. Based on hydraulic continuity, existing and potential water rights, the potential for hydroelectric power generation, the presence of contact recreational activities, aquatic life migration, potential spawning and reproduction, and the presence of nearby wildlife habitat, the beneficial uses of the North Fork of the Feather River apply to Wolf Creek and its tributaries.

12. The beneficial uses of groundwater are municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

#### **EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL**

13. Federal regulations at 40 CFR 122.44(d)(1) require effluent limitations for all pollutants that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a numeric water quality criterion (such as CTR criterion) or a narrative water quality criterion within a State water quality standard. These regulations also set forth a methodology for establishing effluent limitations based on narrative state water quality criteria [40 CFR 122.44(d)(1)(vi)(A-C)].
14. The Discharger was issued a letter under the authority of California Water Code, Section 13267 requesting effluent and receiving water monitoring to meet the requirements of the State Implementation Policy (SIP). The Discharger has sampled the geothermal discharge and the receiving water on 24 December 2003 to determine if the priority pollutants established in the CTR and NTR were detected. Analytical results were submitted for volatile substances, semi-volatile substances, pesticide compounds, metals, asbestos, 2,3,7,8 TCDD and its congeners, and seventy-four priority pollutant organic substances. The methodology described in Section 1.3 of the SIP was used to evaluate the Discharger's monitoring data. None of the priority pollutants were detected at concentrations that would cause or contribute to an in-stream excursion above a water quality objective. Based on CTR results and Facility operations, the Regional Board finds that the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR objectives for priority pollutants. Effluent limitations for priority pollutants have not been included in this Order.
15. Boron is not a priority pollutant, however, Boron has been detected in the effluent at a maximum concentration of 5920 µg/L. The applicable water quality goal is 700 µg/L, which is the agricultural water quality objective. The upstream receiving water concentration was reported as 39 ug/L. This permit contains a required minimum dilution for discharge of 10:1 receiving water to effluent to ensure that Boron concentrations will not exceed the applicable objective in the receiving water.
16. Fluoride, is not a priority pollutant, however based on information submitted, the Regional Board finds that fluoride is present in the effluent at levels exceeding the applicable receiving water objective. The applicable receiving water objective is the California Department of Health Services Primary MCL, (maximum contaminant level), of 2,000 µg/L. The highest concentration of fluoride detected in the geothermal water was reported as 4,600 µg/L. The minimum dilution of 10:1 receiving water to effluent will ensure that fluoride will not exceed the applicable objective in the receiving water.

17. The Basin Plan states that, "The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses." This Order requires the effluent pH to remain between 6.0 and 9.0 units, which is protective of receiving waters due to available dilution in the Creek. These limits are consistent with the limits in the previous Order.
18. The Basin Plan states that, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal or aquatic life. ... In addition effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate." This Permit contains an effluent limit for survival of Fathead Minnow in undiluted effluent as determined by a 96-hour static bioassay.
19. Electrical conductivity measured in the geothermal discharge exceeds 1,000 umhos/cm. The Basin Plan objective for electrical conductivity in the North Fork of the Feather River is 150 umhos/cm (as the 90<sup>th</sup> percentile), although not explicitly related to a beneficial use. Monitoring of the receiving water indicates electrical conductivity periodically exceeds 150 umhos/cm in Wolf Creek below the discharge. However, no monitoring data is available for Wolf Creek above the discharge. Although it has been determined that the beneficial uses of Wolf Creek and its tributaries are identical to those of the River, exceedance of the water quality objective for conductivity applicable to the North Fork of the Feather River would not result in the impairment of Wolf Creeks Creek's beneficial uses. The Order requires monitoring of electrical conductivity in Wolf Creek upstream and downstream of the discharge. This Order contains a receiving water limitation that states the Discharger shall not cause an increase in conductivity in the North Fork of the Feather River above 150 umhos/cm.

#### **OTHER CONSIDERATIONS**

20. Federal Regulations for storm water discharges were promulgated by USEPA on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities, which discharge storm water associated with industrial activity (storm water), to obtain NPDES permits and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to reduce or eliminate industrial storm water pollution. There is no discharge of storm water associated with this discharge.
21. The permitted discharge is consistent with the anti-degradation provisions of 40 CFR Part 131.12 and with SWRCB Resolution No. 68-16 (Policy with Respect to Maintaining High Quality Water of Waters in California). Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

22. Monitoring is required by this Order for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.
23. Section 13267 of the California Water Code states, in part, “(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation... the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.
24. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
25. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), in accordance with Section 13389 of the California Water Code.
26. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
27. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.
28. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 99-019 is rescinded and the Indian Valley Health Care District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:



**A. Discharge Prohibitions:**

1. Discharge of wastewater at a location or in a manner different from that described in Findings of this Order is prohibited.
2. Discharge of effluent to Wolf Creek when dilution is less than 10:1 (receiving water to effluent) is prohibited.
3. The discharge of hazardous or toxic substances, including petroleum products, is prohibited.

**B. Effluent Limitations**

1. The maximum 24-hour average discharge rate shall not exceed 0.12 mgd.
2. The discharge shall not have a pH less than 6.0 nor greater than 9.0.
3. Survival of test fish in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - 70%

Median for any three or more consecutive bioassays - - - - - 90%

**C. Discharge Specifications**

1. Neither the treatment nor the discharge shall cause a nuisance or pollution as defined by the CWC, Section 13050.
2. The discharge shall not cause degradation of any water supply.

**D. Receiving Water Limitations**

Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit.

The discharge shall not cause the following in Wolf Creek, Indian Creek or the North Fork of the Feather River:

1. Electrical conductivity to exceed 150 umhos/cm (90 percentile) for the North Fork of the Feather River in well-mixed waters.
2. Concentration of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of

saturation in the main water mass, and the 95<sup>th</sup> percentile concentration shall not fall below 75 percent of saturation.

3. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
4. Oils, greases, waxes, floating material (liquids, solids, foams, and scums), or suspended material to create a nuisance or adversely affect beneficial uses.
5. Aesthetically undesirable discoloration.
6. Fungi, slimes, or other objectionable growths.
7. Turbidity to increase as follows:
  - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
  - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
  - d. More than 10 percent where natural turbidity is greater than 100 NTUs.

In determining compliance with the above limitations, appropriate averaging periods may be applied upon approval by the Executive Officer.

8. The normal ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units. In determining compliance with the above limitations, appropriate averaging periods may be applied upon approval by the Executive Officer.
9. Deposition of material that causes nuisance or adversely affects beneficial uses.
10. The normal ambient temperature to be altered by more than 5°F.
11. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
12. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

13. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or to cause nuisance or adversely affect beneficial uses.
14. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 mL or cause more than 10 percent of the samples taken in any 30 day period to exceed 400 MPN/100 mL.
15. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
16. Violations of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder.

**E. Provisions**

1. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)," dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."
2. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2004-\_\_\_\_\_, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.

When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self-Monitoring Reports.

3. The Discharger shall conduct the chronic toxicity testing specified in Monitoring and Reporting Program No. R5-2004-\_\_\_\_\_. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall submit a work plan to conduct a toxicity reduction evaluation (TRE), and upon approval conduct the TRE. This Order will be reopened to include a chronic toxicity limitation and/or a limitation for the specific toxicant identified in the TRE. Additionally, if a chronic toxicity water quality objective is adopted by the SWRCB, this Order may be reopened and a limitation based on that objective included.

4. This Order expires on\_\_\_\_\_, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than **180 days** in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
5. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from, the SWRCB, Division of Water Rights.
6. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name; the state of incorporation, if a corporation; the name, address, and telephone number of the persons responsible for contact with the Board; and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6, and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Regional Board, Central Valley Region, on\_\_\_\_\_.

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THOMAS R. PINKOS, Executive Officer